

What is claimed is:

1. A calibrator for calibrating a tool evaluator, the tool evaluator having an actuator and a first sensor, the first sensor being operable to sense a force resulting from modulation of the actuator and transmit a first signal associated with the sensed force, the tool calibrator comprising:
  - a second sensor operable to sense the force and transmit a second signal associated with the sensed force; and
  - a controller operably connected to the second sensor and the tool evaluator, the controller being configured to modulate the actuator and receive the first signal and the second signal, wherein the controller is configured to calibrate the first sensor in response to the first signal and the second signal.
2. The calibrator according to claim 1, wherein the controller is configured to modulate the actuator to exert a plurality of different loads upon the first sensor and the second sensor.
3. The calibrator according to claim 2, further comprising a proportional air valve configured to supply pressurized air to the actuator, wherein the pressure of the air is regulated in response to modulations by the controller.
4. The calibrator according to claim 2, wherein the first sensor is configured to sense the plurality of different loads and transmit a first set of signals to the controller and the second sensor is configured to sense the plurality of different loads and transmit a second set of signals to the controller.

5. The calibrator according to claim 4, wherein the controller is further configured to correlate each load of the plurality of different loads to a respective signal of the first set of signals and the second set of signals and the controller being further configured to determine a response profile of the first sensor to the plurality of different loads in response to the correlation.
6. The calibrator according to claim 5, wherein the controller is further configured to determine whether the response profile is within a predetermined range of values.
7. A tool evaluation calibration system comprising:
  - a tool evaluator for evaluating a tool in response to movement of a member of the tool, the tool evaluator comprising:
    - an actuator configured to apply a force to the member;
    - a first controller operably connected to the actuator and configured to modulate the actuator; and
    - a first sensor configured to sense a resistance to the force and transmit a signal associated with the sensed resistance to the controller, wherein the first controller is configured to determine whether the sensed resistance is relatively greater than a predetermined threshold value; and
  - a calibrator comprising:
    - a second sensor operable to sense force exerted by the actuator and transmit signals associated with the sensed force; and
    - a second controller operably connected to the second sensor and the tool evaluator, the second controller configured to modulate the actuator and receive signals from the second sensor and the first sensor, wherein the second controller is configured to calibrate the first sensor in response to the signals received from the second sensor and the first sensor.

8. The system according to claim 7, wherein the first controller is configured to display a recalibration warning following a predetermined recalibration increment.
9. The system according to claim 7, further comprising a proportional air valve configured to supply pressurized air to the actuator, wherein the pressure of the air is regulated in response to modulations of the proportional air valve.
10. The system according to claim 7, wherein the first controller and the second controller comprise a system controller configured to control the tool evaluation calibration system.
11. The system according to claim 7, wherein the second controller is further configured to correlate each load of a plurality of different loads exerted by the actuator to respective signals from the first sensor and the second sensor and the second controller being further configured to determine a response profile of the first sensor to the plurality of different loads.
12. The system according to claim 11, further comprising a memory, wherein the response profile of the first sensor is stored to the memory in response to the second controller determining the response profile is within a predetermined range of values.

13. An apparatus for calibrating a tool evaluator having a first sensor, the first sensor being operable to sense a force and transmit a first signal associated with the sensed force, the apparatus comprising:

means for disposing a second sensor within the tool evaluator, the second sensor being operable to sense the force and transmit a second signal associated with the sensed force;

means for controlling the tool evaluator to apply the force to the second sensor; and

means for determining a calibration factor in response to the first signal and the second signal.

14. The apparatus according to claim 13, further comprising means for controlling the tool evaluator to apply a plurality of different forces to the first sensor and the second sensor, wherein the first sensor is configured to sense the plurality of different forces and transmit a first set of signals associated with the plurality of different forces, the second sensor being configured to sense the plurality of different forces and transmit a second set of signals associated with the plurality of different forces.

15. The apparatus according to claim 14, further comprising means for determining a response profile of the first sensor in response to the first set of signals and the second set of signals.

16. The apparatus according the claim 15, further comprising means for determining if the response profile is within a predetermined range of values.

17. The apparatus according to claim 13, further comprising means for storing the calibration factor to a table.

18. The apparatus according to claim 17, further comprising means for sensing an identity of the second sensor.
19. The apparatus according to claim 17, further comprising means for extrapolating a performance trend of the tool evaluator in response to the table.
20. A method of calibrating a tool evaluator having a first sensor, the first sensor being operable to sense a force and transmit a first signal associated with the sensed force, the method comprising:
  - disposing a second sensor within the tool evaluator, the second sensor being operable to sense the force and transmit a second signal associated with the sensed force;
  - controlling the tool evaluator to apply the force to the second sensor; and
  - determining a calibration factor in response to the first signal and the second signal.
21. The method according to claim 20, further comprising controlling the tool evaluator to apply a plurality of different forces to the first sensor and the second sensor, wherein the first sensor is configured to sense the plurality of different forces and transmit a first set of signals associated with the plurality of different forces, the second sensor being configured to sense the plurality of different forces and transmit a second set of signals associated with the plurality of different forces.
22. The method according to claim 21, further comprising determining a response profile of the first sensor in response to the first set of signals and the second set of signals.
23. The method according the claim 22, further comprising determining if the response profile is within a predetermined range of values.

24. The method according to claim 23, wherein in response to the response profile being within the predetermined range of values, the calibration factor is determined to be the slope and y-intercept of the response profile.
25. The method according to claim 20, further comprising storing the calibration factor to a table.
26. The method according to claim 25, further comprising sensing an identity of the second sensor.
27. The method according to claim 25, further comprising extrapolating a performance trend of the tool evaluator in response to the table.